

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows.

Please amend the paragraph beginning at page 1, line 7, as follows:

The present invention relates to a portable radio communication apparatus including a housing, and in particular, relates to a portable radio communication apparatus provided with a part of the housing operating as an antenna.

Please amend the paragraph beginning at pages 1-2, line 12, as follows:

Recently, portable radio communication apparatuses such as cellular phones have been increasingly made smaller in size and thinner. In addition, the portable radio communication apparatuses have been not only used as conventional cellular phones but also transformed to data terminal apparatuses for transmitting and receiving E-mails and for viewing web pages through the WWW (World Wide Web). Due to this, liquid crystal displays have been made larger in size. In these circumstances, folding cellular phone terminals, which are considered to be suited to make the portable radio communication apparatuses smaller in size and make the liquid crystal displays larger in size, have been spread as disclosed in the following publications:

- (a) Japanese Patent Laid-open Publication No. 2001-156898;
- (b) Japanese Patent Laid-open Publication No. 2002-084355;
- (c) Japanese Patent Laid-open Publication No. 2002-335180;
- (d) Japanese Patent Laid-open Publication No. 2002-299931; and
- (e) Japanese Patent Laid-open Publication No. 2002-516503.

However, an antenna for use in the conventional portable radio communication apparatus requires an antenna-dedicated electrically conductive part, and then, requires a space occupied by

the conductive part. Due to this, the portable radio communication apparatus cannot be made thinner. Besides, if the antenna is constituted by using a printed wiring board or the like, the material cost is required for the elements, thereby disadvantageously increasing the manufacturing cost thereof.

Please amend the paragraph beginning at page 2, line 20, as follows:

According to ~~the~~ an aspect of the present invention, there is provided a portable radio communication apparatus including a housing. At least one part of the housing is formed as a housing electrical conductor portion by an electrically conductive material, and the housing electrical conductor portion is connected with a radio communication circuit of the portable radio communication apparatus so as to operate as at least one part of an antenna of the radio communication circuit.

Please amend the paragraph beginning at page 5, line 15, as follows:

The above-mentioned portable radio communication apparatus preferably further includes a plurality of reactance elements having a plurality of reactance values different from each other, respectively, and a switching device for selectively switching over the plurality of reactance elements so as to connect a selected one of the reactance elements with the housing electrical conductor portion.

Please amend the paragraph beginning at page 5, line 21, as follows:

The above-mentioned portable radio communication apparatus preferably includes a plurality of reactance elements having a plurality of reactance values different from each other,

respectively, and a switching device for selectively switching over the plurality of reactance elements so as to connect a selected one of the reactance elements with the housing electrical conductor portion through the hinge electrical conductor portion.

Please amend the paragraph beginning at page 19, line 7, as follows:

At least one part of the upper first housing portion 102a is made of an electrically conductive material such as magnesium or zinc, whereas the upper second housing portion 102b is made of an electrically insulating material such as a resin material. As will be described later in detail, all of the upper first housing portion ~~102b~~ 102a may be made of an electrically conductive material. Alternatively, the upper first housing portion ~~102b~~ 102a may be made of an electrically insulating material such as a resin material with an electrical conductor layer made of an electrically conductive material formed on its surface. The portion of the upper first housing portion 102a that is formed by at least the electrically conductive material will be referred to as a conductor portion hereinafter.

Please amend the paragraph beginning at pages 19-20, line 19, as follows:

Further, a liquid crystal display 105 is located substantially in the central portion of the inner side surface of the upper first housing portion 102a and a sound hole portion 106 is arranged above the liquid crystal display 105 at an upper end portion of the inner side surface of the upper first housing portion 102a. A loudspeaker ~~154 of 154~~, as shown in Fig. 2, that generates a voice of a party on the other end of the communication line during a telephone conversation, is arranged immediately under the sound hole portion 106 so that a user of the portable radio communication apparatus can listen to the voice generated by the loudspeaker 154

through the sound hole portion 106. Further, a microphone 107 is arranged on a surface of the lower housing 103 that opposes to the inside (whose surface will be referred to as an inner side surface hereinafter) in the vicinity of a lower end on an opposite side to the hinge portion 104, and a chargeable battery 108 is arranged on a surface of the opposite side to the microphone 107 on the lower housing 103 (whose surface will be referred to as an outer side surface hereinafter). A printed wiring board 109 is arranged on the inside of the lower housing 103 and substantially in the central portion of the lower housing 103 in the thickness direction thereof. As shown in Fig. 2, a radio communication circuit 110 that includes a radio receiver 152 and a radio transmitter 153 is formed on the printed wiring board 109.

Please amend the paragraph beginning at page 20, line 13, as follows:

A connection point 111 that serves as a feeding point of the radio communication circuit 110 is connected with a screw 113 of the upper housing 102 through an antenna element-~~122~~ 112, and the screw 113 is electrically connected with the conductor portion of the upper first housing portion 102a. The antenna element-~~122~~ 112 is provided so as to extend from the radio communication circuit 110 of the lower housing 103 to the screw 113 through an inside of an upper right end of the lower housing 103, an inside of the hinge portion 104, and an inside of the upper second housing portion 102b.

Please amend the paragraph beginning at pages 20-21, line 22, as follows:

As shown in Fig. 1C, an electrical conductor ring 112a having a circular hole 112h is provided on one end of the antenna element-~~122~~ 112. The screw 113 is penetrated through the circular hole 112h, and contacted and electrically connected with the conductor ring 112a.

Therefore, the connection point 111 of the radio communication circuit 110 is electrically connected with the conductor portion of the upper first housing portion 102a through the antenna element 112 and the screw 113, and then, the antenna element 112 and the conductor portion of the upper first housing portion 102a operate as a first antenna element 102A of Fig. 2 of the portable radio communication apparatus.

Please amend the paragraph beginning at pages 53-54, line 22, as follows:

Fig. 32A is a plan view of a folding portable radio communication apparatus in a closed state thereof according to a sixth preferred embodiment of the present invention. Fig. 32B is a side view of the portable radio communication apparatus shown in Fig. 32A. Fig. 33A is a plan view of the portable radio communication apparatus shown in Figs. 32A and 32B in an open state. Fig. 33B is a side view of the portable radio communication apparatus shown in Fig. 33A.

Please amend the paragraph beginning at page 54, line 14, as follows:

The portable radio communication apparatus according to the sixth preferred embodiment constituted as mentioned above has the same functions and advantageous effects as those of the portable radio communication apparatus according to the first preferred embodiment. In addition, since the antenna element 901 is formed on the inside of the boom portion 910 and the conductor portion of the upper first housing portion 120a operates as the antenna element 102A, the portable radio communication apparatus can transmit and receive radio waves without employing the external antenna as required in the conventional portable radio communication apparatus. Therefore, it is possible to prevent the external antenna from ~~being got~~ getting stuck with an operator's pocket when taking out the same apparatus from ~~his~~ their pocket. Further,

since the penetrating hole 910h is formed in the space surrounded by the boom portion 910 and the lower housing 103, the portable radio communication apparatus can be suspended from a neck of a user with a strap 910s attached to the boom portion 910 as shown in Fig. 34. In this case, since it is unnecessary to use the external antenna as used in the conventional portable radio communication apparatus, the portable radio communication apparatus can be designed to be laterally symmetric, and further, the portable radio communication apparatus can be easily well balanced laterally or horizontally when the same apparatus is suspended from the neck of the user.

Please amend the paragraph beginning at pages 72-73, line 23, as follows:

According to the portable radio communication apparatus of the preferred embodiments mentioned above, a combination of (a) a first antenna and (b) a second antenna is provided in the vicinity of the hinge portion of the lower housing of the folding portable radio communication apparatus, where (a) the first antenna is the antenna element 901 of the boom portion 910 connected at a position at which the antenna element 901 is substantially laterally symmetric relative to the width direction or the horizontal direction of the same apparatus, and (b) the second antenna includes, as the component, the upper housing or lower housing at least one part of which is made of the electrically conductive material. It is thereby possible to transmit and receive radio waves without using the conventional external antenna. Therefore, it is possible to solve such a conventional ~~disadvantages that~~ disadvantage of the external antenna ~~is sometimes~~ is sometimes ~~get getting~~ stuck with ~~his~~ a user's pocket when the portable radio communication apparatus is taken out from ~~his~~ the user's pocket. In addition, since the penetrating hole 910h is formed in the space surrounded by the boom portion 910 and the lower housing 103, it is possible to suspend

the portable radio communication apparatus from the neck of the user with the strap 910s attached to the boom portion 910. In this case, since it is unnecessary to use any conventional external antenna, the portable radio communication apparatus can be designed to be laterally symmetric, and the portable radio communication apparatus can be easily well balanced laterally or horizontally when the same apparatus is suspended from the neck of the user.